

### C. Remarks

Claims 46 to 69 remain pending in the subject case, with Claim 46 being the sole independent claim. Reconsideration of the present claims is expressly requested.

Claims 46 to 69 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,863,882 (Lin) in view of WO 97/43385 (Horner) and U.S. Patent Nos. 3,720,606 (Horney); 4,925,707 (Vinod) and 4,839,212 (Blyth). The grounds of rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicants again would like to review some of the features and advantages of the presently claimed invention. That invention is related to an aqueous odor controlling bacterial composition. This composition includes a bacterium, which is capable of forming a spore and which can become active when exposed to organic material and digest this material. The composition also includes at least one adhering agent in an amount sufficient to adhere the bacterium to a surface upon application of the composition thereto and allow the bacterium to remain adhered to the surface so that it can be exposed to the odor-causing organic material and become active. As a result, such a composition, upon application, can provide a surface with long-lasting and preventative odor controlling properties.

Specifically, when the dormant bacterium is activated, it can digest the odor-causing material, thereby controlling odor that otherwise would be produced. Once the odor has been eliminated, the adhered bacterium returns to its dormant state, and a subsequent application of the odor-causing organic material will once again activate the bacterium, thereby repeating the deodorizing process. The adhering agent keeps the bacterium associated with the surface and available for repeated exposure and activation.

Therefore, the presently claimed composition may be used to provide a long-lasting, preventative odor controlling treatment to various surfaces.

The claims provide for an aqueous composition, which, in one embodiment, contains dormant bacteria and specific adhering agents or, in a separate embodiment, includes the dormant bacterium, at least one adhering agent and, optionally, at least one odor neutralizing or odor trapping agent.

The Examiner has alleged that the arguments presented by Applicants in the last-filed Amendment do not overcome the rejections of record for failure to distinguish the present claims from prior art. Applicants respectfully submit that the Examiner's reasons for maintaining the above rejection presented on pages 4-9 of the instant Office Action are both factually and legally incorrect. Applicants will specifically address the allegations made by the Examiner.

On pages 5 and 6 of the instant Office Action, the Examiner alleged:

The language of composition (B) of claim 46 is open terminology which can include a surfactant, see "consisting essentially of". Also the argument that Lin and Horner would be unable to perform their intended function without a surfactant is noted, however, the surfactant can be present in such small amounts, as low as 1 %, that this would have led one of ordinary skill in the art to combine the cited prior art with an expectation of success. . . . Note that any surfactant present can be in such low percentage amounts that one of skill would have been motivated to select for these agents and compounds for use together with the expectation of successful results.

As a matter of law, the phrase "consisting essentially of" excludes ingredients which would affect the basic and novel characteristics of the product defined in

the claim. *See In re Garnero*, 162 U.S.P.Q. 221 (C.C.P.A. 1969). As Applicants have previously pointed out, a surfactant would affect the basic and novel characteristics of the composition recited in part B of Claim 46.

Specifically, according to a dictionary definition, a surfactant is “[a]ny compound that reduces surface tension when dissolved in water or water solutions, or that reduces interfacial tension between two liquids, or between a liquid and a solid.”<sup>1</sup> Adhesion is defined as “[t]he state in which two surfaces are held together by interfacial forces.”<sup>2</sup> From these definitions, it is clear that a surfactant acts opposite to an adhesive and prevents adhesion to the surface. Since preventing adhesion to the surface affects the basic and novel characteristics of the claimed invention, i.e., composition which upon application adheres bacteria to the surface, the ingredient that performs such an anti-adhering function is excluded from part B of Claim 46 by virtue of the transition phrase “consisting essentially of.”

The Examiner has alleged that the compositions in Lin and Horner can have such a low amount of surfactant, for example, 1%, that a reasonable expectation of success could be expected. However, the Examiner will appreciate that since both Lin and Horner require the presence of the surfactant in order for the cleaner to perform its desired function (i.e., remove dirt adhered to a surface), the amount of the surfactant present in the cleaner, no matter how small, must be large enough to act in an anti-adhering manner. Without

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<sup>1/</sup> Hawley’s Condensed Chemical Dictionary, 14<sup>th</sup> ed., p. 1061 (copy previously provided to the Examiner).

<sup>2/</sup> Hawley’s Condensed Chemical Dictionary, 14<sup>th</sup> ed., p. 22 (copy previously provided to the Examiner).

such a minimal amount, Lin and Horner would be unable to perform their intended cleaning function and be unsatisfactory for their intended purpose. *See In re Gordon*, 221 U.S.P.Q. 1125 (Fed. Cir. 1984); see also, M.P.E.P. § 2143.05(V).

Thus, Lin and Horner necessarily include enough surfactant to affect the basic novel characteristics of the composition in part B of Claim 46. Accordingly, part B of Claim 46 inherently excludes the amount of surfactant required by Lin and Horner to function as disclosed. Furthermore, the Examiner will appreciate that there is no motivation to omit the surfactant from the cleaners disclosed in Lin and Horner or use it in just any small amount because it is essential to the cleaning composition.

On page 5 of the Office Action, the Examiner also alleged the following:

Horner et al clearly teach adhering agents since they disclose condensation products, page 12, lines 20-22.

Horner, at page 12, lines 20-22, discloses non-ionic surfactants that can be used in the surfactant systems of the detergent. This disclosure is not understood to be in any way pertinent to the presently claimed adhering agents, which are clearly not surfactants.

On page 6 of the Office Action, the Examiner alleged:

Also, with the combination of the cited prior art the composition of Lin would not be expected to be washed away as alleged by Applicants because as pointed out by Applicants the combination would have been expected to provide for the successful results by preventing removal of the composition. Lin et al teach many surfaces and they teach that their composition provides long term effect of beneficial bacteria that control pathogens and degrade wastes on a surface, see the abstract.

This allegation by the Examiner is based on the premise that it would have been obvious to combine the composition in Lin with the presently claimed adhering agent. However, there is no basis for drawing such a conclusion, which is contrary to the explicitly disclosed function of the cleaner in Lin.

Specifically, Lin is directed to surface cleaners containing surfactants, both with and without an abrasive, for removing soils, dirt, dried urine, stubborn stains, deposit, and scum from sinks, toilet bowls and other bathroom fixtures (col. 1, lines 13 to 16). Lin states that the cleaner is applied to the surface and is “then flushed away or rinsed with water and discharged from the fixture” (col. 3, lines 15-17). Thus, clearly, Lin explicitly teaches that the cleaning composition is not to be adhered to the surface being cleaned.

This is further support by the fact that Lin states that surfactants are an “essential component” in its formulation (col. 5, lines 41). Surfactants provide required wetting and emulsification actions (see col. 3, lines 40-54). As discussed above, surfactants act opposite to adhering agents and prevent adhesion to the surface being treated.

The Examiner noted that the abstract in Lin mentions “long term” effect of its cleaning composition. However, based on the disclosure in Lin, this long term effect is not achieved by leaving bacterial spores on the cleaned surface after flushing. This effect is the result of removing from the surface harmful bacteria and soil (e.g., dried urine) that can serve to cultivate harmful bacteria, which can be accomplished by chemical means and by leaving bacteria unattached until flushing. Lin specifically teaches that its “bacterial spores, and vegetative cells therefrom, function to seed the waste collection system, control

odor and provide a healthy dominant microbial population that inhibits the growth of pathogens through substrate competition, production of antibiotics, etc.” Therefore, the long-term action of bacterial spores is related to their association with waste products flushed away from the surface being cleaned and to the neutralization of harmful bacteria present on the surface prior to flushing.

In conclusion, Lin clearly does not teach that any bacterial spores should remain behind after cleaning. Furthermore, in view of the intended function of removing materials from the surface being cleaned, there is no motivation to facilitate adherence to this surface.

On page 6 of the Office Action, the Examiner alleged:

Horner et al teach or suggest a composition of an adhering agent and the bacteria since at page 10, line 13, the composition is disclosed to be liquid and to include enzymes derived from the same bacterium as claimed, see page 7, lines 8-17.

The Examiner appears to have alleged that since Horner discloses the use of enzymes produced by bacteria encompassed by the present claims, Horner suggests the use of bacteria per se in the detergent. This allegation, however, is not supported by any factual or legal underpinnings. Bacteria and the enzymes they produce are different in various key aspects, not the least of which is that one is a living organism and the other is a chemical compound. They are not interchangeable simply because one can be used to produce the other. The Examiner’s statement is akin to arguing that since manure is used in fertilizer and cows produce manure, it would be obvious to include a cow in fertilizer.

Further, on page 6 of the Office Action, the Examiner alleged:

[S]tain blockers such as maleic anhydride polymers (i.e. hydrolyzed vinyl aromatic maleic anhydride polymer) are disclosed [in Horner] at page 32, lines 33-37 and also acrylic acid co-polymer at line 36. Thus, the argument that it would not have been obvious to include stain blockers and fluorochemicals in compositions containing bacteria is not deemed persuasive because the bacteria produce enzymes which can react with the compounds to provide for adherence to the surface.<sup>3</sup>

As Applicants pointed out to the Examiner in the last-filed Amendment, maleic anhydride copolymers with ethylene, methylvinyl ether, methacrylic acid or acrylic acid, which are listed in Horner, are substantially different from a hydrolyzed vinyl aromatic maleic anhydride polymer or an acrylic acid co-polymer of the presently claimed adhering agent in part A of Claim 46. As stated in the specification and the claims, a hydrolyzed vinyl aromatic maleic anhydride polymer is a stain blocker. The ethylene-maleic anhydride copolymer of Horner is not a stain blocker, but is an anti-streak composition used in glass cleaners (see U.S. Patent No. 4,673,523). Methylvinyl ether maleic anhydride co-polymer is a Gantrez® type polymer, which is not known to have stain blocking properties. Lastly, a methacrylic acid maleic anhydride copolymer and an acrylic acid maleic anhydride copolymer are both corrosive, acidic bleaching agents, which will likely destroy the sporulated bacteria (see Lin, col. 2, lines 38-41). Clearly, maleic anhydride polymers and an acrylic acid co-polymer disclosed in Horner are not the adhering agents recited in part A of Claim 46.

On page 7 of the Office Action, the Examiner stated:

The alleged connection by Applicants that the composition in Horner et al and Lin et al is intended to be washed away during use is not convincing or persuasive. The same chemical agents are disclosed as

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<sup>3/</sup> This statement has been reproduced with a corrected spelling error.

discussed above, and would intrinsically function as adhering agents, per se.

Applicants respectfully submit that this is incorrect. As discussed above, Lin explicitly states that its composition is flushed away during use. Horner has no disclosure or suggestion of any component of its composition remaining behind after use. The reference to the intrinsic function of adhering agents is clearly incorrect in view of the detailed discussion presented above with respect to the specific compounds in Horner alleged by the Examiner to be adhering agents, which, in fact, have different functionality.

The Examiner also alleged that it would have been obvious to use adhering agents in Lin and Horner in view of the disclosure in Vinod and Blyth. Specifically, on pages 8 and 9, the Examiner alleged:

Vinod and Blyth et al teach that the stain blockers can serve as adhering agents because they coat the surface and hence adhere to it so they can adhere the bacteria as well. Vinod clearly teach or suggest at column 7, lines 25-50, that there is a desire to improve the overall distribution and contact between the surface and the composition and that this can be improved by applying the stain blocker together with a detergent (i.e., surfactant). Thus, adhesion is a desired expected successful result of the cited prior art combination and in the absence of evidence to the contrary the claim remains prima facie obvious.

Blyth discloses conventional fluorochemicals and stain blockers, which are bonded to the carpet by a melt polymerization process (see e.g., col. 3, lines 31-35; see also, Vinod at col. 2, lines 30-34). These polymers cannot be applied using cleaning processes disclosed in either Lin or Horner to adhere bacteria spores.

Vinod teaches specific stain blocker compositions, which can be applied to the carpet after installation by allowing the carpet to dry (see, e.g., col. 3, lines 59-66).



Since the cleaning processes taught in both Lin and Horner are wet processes, requiring agitation and flushing, there is no motivation to use stain blockers selected specifically to be applied by drying. These fluorochemicals would simply be flushed away without performing their designated function. There is clearly no motivation to add a non-functional ingredient to the cleaners in Lin and Horner.

Furthermore, the intended use of stain-blockers and fluorochemicals in conventional carpet applications, such as those in Blyth and Vinod, is to prevent adhesion of other materials to the carpet, which is directly opposite to the effect the presently claimed invention is capable of producing. There is clearly no motivation to use these compounds as agents for adhering anything to the carpet.

In addition, it is clear that an application of an aqueous composition containing bacteria onto a carpet already treated with a stain-blocker does not result in the stain-blocker being incorporated into this aqueous composition. If such were the case, the treatment in Blyth and Vinod would cease to perform its intended function and would likely be washed away. Thus, clearly, neither Blyth nor Vinod would motivate a skilled artisan to use a stain blocker in an aqueous composition to enhance adherence of bacteria to the surface being treated. If the Examiner wishes to further rely on the combination of Blyth or Vinod with Lin and/or Horner, the Examiner must show where the art teaches that the stain-blockers and fluorochemicals in Blyth and Vinod can be applied by the cleaning processes taught in Lin and Horner.

Lastly, the Examiner cited Horney to show that bacterial spores can be combined with other components. Even if assumed, *arguendo*, that Horney contains such a

teaching, it does not provide any motivation or suggestion to combine the sporulated bacteria with the specific ingredients as alleged by the Examiner in the Office Action.

In conclusion, Applicants respectfully submit that the cited documents, whether considered separately or in any combination, do not disclose or suggest the presently claimed elements. Therefore, Applicants respectfully request that the outstanding rejection be withdrawn and the present case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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